

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/010,807	TAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Christopher L. Chin	1641	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to \_\_\_\_\_.
2. ☒ The allowed claim(s) is/are 1,2,4,5,12,13 and 15-43.
3. ☒ The drawings filed on 13 November 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                       |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>12/14/04</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                               | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|  | 9. <input type="checkbox"/> Other _____.  |

Christopher L. Chin  
Primary Examiner  
Art Unit: 1641

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Margaret McLaren on March 18, 2005.

The application has been amended as follows:

a.) Amended claims 1-17 as follows:

1. (Amended) A method of identifying cells expressing a preselected molecule comprising the steps of:

providing a plurality of cells at least some of which express the preselected molecule;

providing a plurality of silica-coated nanoparticles coated with a functional group that binds to the preselected molecule, each of said nanoparticles having a mean size of less than 1 micron and comprising a core comprising a pigment and a silica shell enveloping the core, wherein the pigment is an inorganic salt selected from the group consisting of potassium permanganate, potassium dichromate, nickel sulfate, cobalt-chloride, iron (III) chloride, and copper nitrate;

mixing the plurality of silica-coated nanoparticles with the plurality of cells to form a mixture;

placing the mixture under conditions that allow the nanoparticles to bind to cells expressing the preselected molecule; and

analyzing the cells for bound nanoparticles to identify the cells expressing the preselected molecule.

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2. (Amended) The method of claim 1, wherein the silica-coated nanoparticles are fluorescent.

Cancel claim 3.

4. The method of claim 1, wherein the nanoparticles have a mean size between 1 nm and 300 nm.

5. The method of claim 1, wherein the nanoparticles have a mean size between 2 nm and 10 nm.

Cancel claims 6-11.

12. The method of claim 1, wherein the functional group is a protein.

13. (Amended) The method of claim 12, wherein the protein is an antibody that specifically binds to the preselected molecule.

Cancel claim 14.

15. The method of claim 1, wherein the functional group is a nucleic acid.

16. The method of claim 1, wherein the functional group is a substance selected from the group consisting of biotin and streptavidin.

17. (Amended) The method of claim 1, wherein the silica shell comprises a reactive silicate selected from the group consisting of TEOS (tetraethylorthosilicate) and APTS (aminopropyltrimethoxysilane).

b.) Add the following new claims:

18. (New) A method of identifying cells expressing a preselected molecule comprising the steps of:

providing a plurality of cells at least some of which express the preselected molecule;

providing a plurality of silica-coated nanoparticles coated with a functional group that binds to the preselected molecule, each of said nanoparticles having a mean size of less than 1 micron and comprising a core comprising a dye and a silica shell enveloping the core;

mixing the plurality of silica-coated nanoparticles with the plurality of cells to form a mixture;

placing the mixture under conditions that allow the nanoparticles to bind to cells expressing the preselected molecule; and

analyzing the cells for bound nanoparticles to identify the cells expressing the preselected molecule.

19. The method of claim 18, wherein the silica-coated nanoparticles are fluorescent.

20. The method of claim 18, wherein the nanoparticles have a mean size between 1 nm and 300 nm.

21. The method of claim 18, wherein the nanoparticles have a mean size between 2 nm and 10 nm.

22. The method of claim 18, wherein the dye is selected from the group consisting of Ruthenium-tris(2,2'-bipyridyl)dichloride and Europium-bis(2,2'-bipyridyl)trichloride.

23. The method of claim 18, wherein the functional group is a protein.

24. The method of claim 23, wherein the protein is an antibody that specifically binds to the preselected molecule.

25. The method of claim 18, wherein the functional group is a nucleic acid.

26. The method of claim 18, wherein the functional group is a substance selected from the group consisting of biotin and streptavidin.

27. The method of claim 18, wherein the silica shell comprises a reactive silicate selected from the group consisting of TEOS (tetraethylorthosilicate) and APTS (aminopropyltrimethoxysilane).

28. A method of identifying cells expressing a preselected molecule comprising the steps of:

- providing a plurality of cells at least some of which express the preselected molecule;

- providing a plurality of silica-coated nanoparticles coated with a functional group that binds to the preselected molecule, each of said nanoparticles having a mean size of between 2 nm and 10 nm and comprising a core comprising a metal and a silica shell enveloping the core;

- mixing the plurality of silica-coated nanoparticles with the plurality of cells to form a mixture;

- placing the mixture under conditions that allow the nanoparticles to bind to cells expressing the preselected molecule; and

- analyzing the cells for bound nanoparticles to identify the cells expressing the preselected molecule.

29. The method of claim 28, wherein the core is magnetic.

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30. The method of claim 29, wherein the core comprises a metal selected from the group consisting of magnetite, maghemite, and greigite.

31. The method of claim 28, wherein the functional group is a protein.

32. The method of claim 31, wherein the protein is an antibody that specifically binds to the preselected molecule.

33. The method of claim 28, wherein the functional group is a nucleic acid.

34. The method of claim 28, wherein the functional group is a substance selected from the group consisting of biotin and streptavidin.

35. The method of claim 28, wherein the silica shell comprises a reactive silicate selected from the group consisting of TEOS (tetraethylorthosilicate) and APTS (aminopropyltrimethoxysilane).

36. A method of identifying cells expressing a preselected molecule comprising the steps of:

providing a plurality of cells at least some of which express the preselected molecule;

providing a plurality of silica-coated nanoparticles coated with a functional group that binds to the preselected molecule, each of said nanoparticles having a mean size of less than 1 micron and comprising a core comprising Ag and a silica shell enveloping the core;

mixing the plurality of silica-coated nanoparticles with the plurality of cells to form a mixture;

placing the mixture under conditions that allow the nanoparticles to bind to cells expressing the preselected molecule; and

analyzing the cells for bound nanoparticles to identify the cells expressing the preselected molecule.

37. The method of claim 36, wherein the nanoparticles have a mean size between 1 nm and 300 nm.

38. The method of claim 36, wherein the nanoparticles have a mean size between 2 nm and 20 nm.

39. The method of claim 36, wherein the functional group is a protein.

40. The method of claim 39, wherein the protein is an antibody that specifically binds to the preselected molecule.

41. The method of claim 36, wherein the functional group is a nucleic acid.

42. The method of claim 36, wherein the functional group is a substance selected from the group consisting of biotin and streptavidin.

43. The method of claim 36, wherein the silica shell comprises a reactive silicate selected from the group consisting of TEOS (tetraethylorthosilicate) and APTS (aminopropyltrimethoxysilane).

c.) On page 1 of the specification, line 6, after "Nanoparticles", inserted -- , now US Patent 6,548,264 --.

**Conclusion**


2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents 4,054,465; 4,438,156; 5,091,206; 5,667,716; 5,695,901; 5,874,111;  
5,879,715; 5,958,329; and 6,103,379

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L. Chin whose telephone number is (571) 272-0815. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Christopher L. Chin  
Primary Examiner  
Art Unit 1641

2/25/05